Innovation Saskatchewan

Annual Report for 2015-16

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Government of Saskatchewan

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Letter of Transmittal and Message from the Board Chair

Her Honour, the Honourable Vaughn Solomon Schofield, Lieutenant Governor of Saskatchewan

May it Please Your Honour:

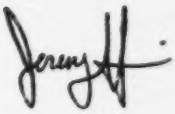
Formed in 2009, Innovation Saskatchewan (IS) works to advance the Government of Saskatchewan's innovation agenda — developing an environment in the province that encourages and rewards innovation. The provincial government agency provides recommendation and advice on research and development, science and technology. It also works collaboratively with industry and stakeholders to encourage the commercialization of technology and increased competitiveness.

During the 2015-16 fiscal year, IS developed projects and programs, as well as executed a number of undertakings to assist in the implementation of the province's innovation priorities.

Accomplishments include collaborating with other ministries and agencies to support and/or invest in research in the Canadian Light Source, the Global Institute for Food Security, the Sylvia Fedoruk Canadian Centre for Nuclear Innovation, the International Minerals Innovation Institute, the Vaccine and Infectious Disease Organization-International Vaccine Centre, the Petroleum Technology Research Centre, the Saskatchewan Research Council and the Universities of Regina and Saskatchewan. Research focused on a range of areas, including natural products, global food security challenges, health and mining.

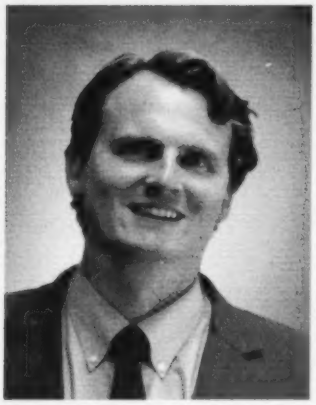
Saskatchewan has a rich history of innovation, with notable advancements in agriculture, energy and health care. In its Saskatchewan Plan for Growth, the provincial government notes that the province's future economic success will depend increasingly on knowledge and innovation. As well, one of six core growth activities outlined in the plan is to advance the province's natural resource strengths, particularly through innovation, in order to build the next economy and ultimately secure a better quality of life for all Saskatchewan people.

On behalf of IS and its Board of Directors, I have the honour to submit herewith the Annual Report of Innovation Saskatchewan, together with the financial statements, for the fiscal year ending March 31, 2016.



The Honourable Jeremy Harrison
Minister Responsible for Innovation
Chair of the Innovation Saskatchewan Board of Directors

Letter of Transmittal from the CEO



The Honourable Jeremy Harrison, Minister Responsible for Innovation

Dear Sir:

I have the honour of submitting the Annual Report of Innovation Saskatchewan for the fiscal year ending March 31, 2016. This report has been prepared and carefully reviewed, and accurately represents the activities and accomplishments of our agency during the past year.

Wes Jickling
Chief Executive Officer
Innovation Saskatchewan

Introduction

This annual report for Innovation Saskatchewan (IS) presents the agency's results for the fiscal year ending March 31, 2016. It demonstrates the agency's commitment to effective public performance reporting, transparency and accountability.

IS's activities in 2015-16 align with the Government of Saskatchewan's vision "...to be the best place in Canada – to live, to work, to start a business, to get an education, to raise a family, and to build a life," as well as its four goals:

- Sustaining growth and opportunities for Saskatchewan people;
- Meeting the challenges of growth;
- Securing a better quality of life for all Saskatchewan people; and
- Delivering responsive and responsible government.

Together, all ministries and agencies support the achievement of these goals and work towards a secure and prosperous Saskatchewan.

Agency Overview

Innovation Saskatchewan (IS) is the central agency of the Government of Saskatchewan responsible for implementing Saskatchewan's innovation priorities. IS provides recommendations and advises the provincial government regarding its strategic direction in the areas of research and development, science and technology.

The agency engages directly with industry and stakeholder groups to promote the commercialization of technology and increase productivity for the economic benefit of the province. IS also co-ordinates between ministries, other agencies and Crown corporations to ensure that the province's innovation agenda is communicated and represented across government's many policies and priorities.

Located at the Innovation Place research park in Saskatoon, IS works to grow a culture of innovation in Saskatchewan for the benefit of the province and its people. Through *The Innovation Saskatchewan Act*, proclaimed on November 2, 2009, the purposes of IS are:

a) To facilitate the co-ordination and strategic direction of the Government of Saskatchewan's support for research and development and science and technology with the objective of fostering the development of new ideas, products and processes to ensure the long-term sustainable growth of Saskatchewan's economy;

b) To provide advice and guidance to the Government of Saskatchewan respecting science and technology policy, and to establish, measure, monitor and report on the Government of Saskatchewan's strategies and goals for advancing innovation in Saskatchewan;

c) To co-ordinate and support the establishment and maintenance of science, research and development infrastructure in Saskatchewan;

d) To provide recommendations and advice to the Government of Saskatchewan respecting research, development, demonstration, and the commercialization of new technologies and innovative processes in Saskatchewan, including policies that may better co-ordinate, support, foster, promote and facilitate research, development, demonstration and the commercialization of technology;

e) On request of the Lieutenant Governor in Council, to undertake any program or activity for the purposes of achieving the objectives described in clause (d); and

f) To undertake any other prescribed programs and activities.

Board of Directors

IS is led by a Board of Directors with years of experience in innovation. They have diverse backgrounds in industrial sectors of importance to Saskatchewan, and offer a breadth of Canadian perspectives. The board provides leadership and strategic direction to the agency.

Some of the key responsibilities of the board include:

- Supervision of the Chief Executive Officer (CEO) in managing the affairs of IS;
- Reviewing and approving IS's annual budget; and
- Reviewing and approving projects seeking funding through designated IS funds.

The members of the IS Board of Directors for 2015-16 were:

Honourable Jeremy Harrison (Chair)
Minister Responsible for Innovation

Honourable Bill Boyd (Vice-Chair)
Minister of the Economy

Mr. Daniel Halyk
President and CEO, Total Energy Services Ltd. , Calgary, AB

Mr. Trevor Thiessen
President, Redekop Manufacturing, Saskatoon, SK

Ms. Pam Haidenger-Bains
Owner, Down to Business, Saskatoon, SK

Mr. Warren Steinley
MLA, Regina Walsh Acres, Regina, SK

Dr. Don Somers
Consultant, Saskatoon, SK

Saskatchewan's Innovation Strategy

Innovation can be defined as the creation and transformation of knowledge and ideas into new products, processes and services that meet market needs.

Essentially, innovation is the process of converting new knowledge into wealth. To be innovative, new knowledge must be implemented in a manner that provides an economic, environmental or social benefit.

The following innovation strategy embodies both the knowledge gained through past experiences and successes as well as the direction and achievements expected to be obtained through continued work.

Mission Statement

On September 28, 2010, the Board of Directors of IS created the following mission statement: "To be an innovation catalyst serving the needs of individuals, companies and institutions."

IS strives to encourage the existence of a sustainable, globally competitive business environment in the province.

Vision

The vision of IS is: "Saskatchewan will be among the leading jurisdictions in its capacity and ability to innovate."

Focus

Government support for innovation in most jurisdictions focuses on two areas:

- Assuring that the environment for innovation exists within the jurisdiction; and
- Working to enhance the competitiveness of companies within the jurisdiction.

Many factors influence the provincial innovation system and need to be included in the innovation strategy. Some of these factors include:

- The financial capacity of Saskatchewan companies to transfer technology, commercialize research, or implement new technology in production or service, and the availability of funding or investment;
- The willingness, or ability thereof, of Saskatchewan companies to invest in research and development, and the capacity of Saskatchewan companies to integrate new technologies into their existing products, product line and/or processes;
- Human capital – the need for a skilled workforce and the impact of changing demographics in the workforce, including the management capabilities within Saskatchewan companies; and
- Research, technology transfer and commercialization entities and their capabilities.

Strategic Objectives

In the *Innovation Saskatchewan Strategic Plan for 2015-20*, IS committed to striving towards the achievement of five strategic objectives, detailed below. The subsequent "Progress in 2015-16" section of this annual report details the projects and programs that advanced the achievement of these objectives in the 2015-16 fiscal year.

Objective 1: Encourage and Drive Innovation

- Increase Production
  - Fund projects and research that expand Saskatchewan's capacity to increase production output and grow key economic sectors.
- Improve Productivity
  - Fund projects that offer improved competitiveness, productivity and technological advancements to Saskatchewan's core industries.
- Economic Diversification
  - Support the creation of new sub-sectors and industries in the core economic sectors and their value chains.
  - Collaborate with other ministries to strengthen provincial strategies and actions in identified areas of economic opportunity.
- International Leadership
  - Fund and/or partner with and promote Saskatchewan institutions that lead the world in research and development (R&D) in areas of strategic importance to Saskatchewan.
  - Participate in international partnerships that facilitate knowledge transfer and trade in areas of high impact.

Objective 2: Co-ordinate and Align Provincial Investments

- Represent Provincial Interests
  - Fund projects and research and expand Saskatchewan's capacity to increase production output and grow key economic sectors.
- Inter- and Intra-Governmental Collaboration
  - Co-ordinate with other provincial and federal ministries and departments to promote use of the existing capacity in Saskatchewan's science and technology (S&T) infrastructure and attract investment in Saskatchewan.
- Strategic Synergies
  - Connect researchers and other key actors in Saskatchewan's S&T institutions to facilitate collaboration and cross-disciplinary application of R&D to create transformative results and attract investments.

Objective 3: Grow Innovation Capacity in Industry

- Industry Expansion
  - Support efforts to increase the capacity of the Saskatchewan private sector to become leaders in adopting innovation practices in the workplace through the provision of skills training opportunities.
- Innovation Intermediaries
  - Evaluate the effectiveness of existing intermediary services available to industry, and use principles of continuous improvement to maximize service availability and impact.

Objective 4: Advise Government for Impactful Policy

- Leadership in Government
  - Offer expert advice on innovation issues to elected and executive government, and provide leadership in innovation policy issues.
  - Provide innovation skills training to public sector organizations to encourage innovation in government.

Objective 5: Foster Organizational Efficiency and Effectiveness

- Organizational Culture
  - Continue to implement the cultural sustainment plan, and encourage active staff participation in achieving a workplace that demonstrates integrity, tolerance and an appreciation for public service.
- Public Sector Initiatives
  - Prioritize the full adoption of key government initiatives such as Public Service Renewal, Citizen First, Continuous Improvement and One Team.

Progress in 2015-16

Expanded Responsibilities in 2015-16

In the 2015-16 budget, the Government of Saskatchewan transferred responsibility for the province's investment in the Canadian Light Source (CLS), Vaccine and Infectious Disease Organization-International Vaccine Centre (VIDO-InterVac), the Innovation and Science Fund (ISF), and the Saskatchewan Health Research Foundation (SHRF) to IS. IS is able to effectively collaborate and coordinate with these organizations and programs to create synergies that reduce duplication and increase efficiency through achieving beneficial shared outcomes.

IS had demonstrated its ability to manage research and innovation investments, and to convey government expectations for investment outcomes. IS has also built credibility and trust in its relationships with provincial universities and research infrastructure organizations. The transfer of responsibility for these programs to IS represents a continued confidence in IS and a renewed commitment to creating economic and social benefits for Saskatchewan through investments in innovation.

Canadian Light Source (CLS)

Responsibility for the Canadian Light Source was transferred to IS from the Ministry of Advanced Education at the beginning of the 2015-16 fiscal year. IS and the CLS signed a funding agreement that formalizes this new relationship. This transfer reflects the growing importance of convergent innovation practices and the ability to increase the impact of research infrastructure through cross-sectoral research. Some of the research projects conducted at the CLS also include IS partner organizations such as the Petroleum Technology Research Centre (PTRC), the Sylvia Fedoruk Canadian Centre for Nuclear Innovation, the Saskatchewan Health Research Foundation (SHRF) and the Global Institute for Food Security (GIFS).

Vaccine and Infectious Disease Organization-International Vaccine Centre (VIDO-InterVac)

Responsibility for VIDO-InterVac was transferred to IS from the Ministry of Advanced Education at the beginning of the 2015-16 fiscal year. IS and VIDO-InterVac signed a funding agreement that formalizes this new relationship. The Government of Saskatchewan provides 39 per cent of total funding for VIDO-InterVac, meaning that provincial funding dollars are leveraged by federal and private funding at a rate of roughly 2:1.

Innovation and Science Fund (ISF)

The Innovation and Science Fund (ISF) was transferred from the Ministry of Advanced Education to IS at the beginning of the 2015-16 fiscal year. IS has continued to administer the fund for the purpose of promoting excellence in research with emphasis on areas for strategic importance throughout Saskatchewan's post-secondary and non-profit research institutions, and leveraging federal research funding into Saskatchewan. The ISF, which was reduced from $6.35 million to $4 million at the time of transfer, was fully committed for the 2015-16 fiscal year.

Saskatchewan Health Research Foundation (SHRF)

Responsibility for the Saskatchewan Health Research Foundation (SHRF) was transferred to IS from the Ministry of Health at the beginning of the 2015-16 fiscal year. In the first year of this new arrangement, SHRF and IS established a formal funding contract with contingent expectations and committed to work together to achieve beneficial outcomes for Saskatchewan people. SHRF selected and hired a new Chief Executive Officer to lead the organization. In March 2016, SHRF awarded 21 Collaborative Innovation Development (CID) grants to research teams searching for innovative solutions that will improve the lives of Saskatchewan people.

Saskatchewan's Integrated Nuclear Research and Development Strategy

In 2011, the Government of Saskatchewan committed $57 million in funding for the Integrated Nuclear Research and Development Strategy over seven years, to achieve five specific initiatives. By 2015-16, two of the initiatives had been completed. The three active initiatives indicate excellent results:

- Sylvia Fedoruk Canadian Centre for Nuclear Innovation
    - In September 2015, the Fedoruk Chair in Nuclear Imaging Technologies for the University of Regina was announced. The Chair is supported through a $1.475 million research grant. In February 2016, the Fedoruk Centre invested $2 million in an energy research project at the Johnson-Shoyama Graduate School of Public Policy that focuses on public policy and social engagement.
- Saskatchewan Centre for Cyclotron Sciences (SCCS)
    - Construction of the Saskatchewan Centre for Cyclotron Sciences (SCCS) facility was completed in December 2014, and the facility began creating medical isotopes for experimental use in February 2016. Full approval by Health Canada for use of SCCS-produced medical isotopes is scheduled for December 2016.
- Canadian Light Source Research on Commercial Production of Medical Isotopes
    - In 2015, the Canadian Light Source established a spin-off subsidiary company, Canadian Isotope Innovations, which is able to produce molybdenum[99] from non-reactor linear accelerator technologies.
- Hitachi Ltd. Nuclear Research Partnership
    - The Government of Saskatchewan signed a Memorandum of Understanding (MOU) in 2011 with Hitachi Ltd., on nuclear research. Hitachi and the University of Saskatchewan signed an agreement involving six research projects totalling $1.2 million in 2014 and continuing into the 2015-16 fiscal year. Hitachi has expressed an interest in additional joint projects with the province.

International Minerals Innovation Institute (IMII)

In 2012, the International Minerals Innovation Institute (IMII) was established as a collaboration between industry, government, education and research institutions to address the need for educational programming and research projects that meet industry-expressed needs. Since 2012, IMII membership has grown to include seven funding members from industry as well as 19 other members that represent provincial education and research institutions:

- Agrium Inc., BHP Billiton, Cameco Corporation, K+S Potash Canada, the Mosaic Company, North Rim Exploration Ltd. and PotashCorp;
- IS, the funding member representing the Government of Saskatchewan; and
- Non-funding members, including:
    - Saskatchewan Ministry of Advanced Education;
    - Universities of Saskatchewan and Regina;
    - Saskatchewan Polytechnic; First Nations post-secondary institutions; and
    - Saskatchewan regional colleges and government-owned research institutions.

By the end of 2015-16, the IMII had established the Mining Engineering Options Program (University of Saskatchewan), the Mine School (Northlands College) and the Centre for Minerals Innovation (Saskatchewan Polytechnic). IMII-funded training programs have produced 97 graduating students, 60 per cent of which identify as Aboriginal.

Ongoing research and development projects undertaken through IMII funding in 2015-16 focus on improving worker safety in mines, solving materials corrosion problems and addressing the need for increased environmental protections. These research and development projects have created employment and engagement for 20 industry subject matter experts, 69 faculty members and 40 graduate students in Saskatchewan.

The Petroleum Technology Research Centre (PTRC)

Funding provided to the Petroleum Technology Research Centre (PTRC) in 2015-16 enabled the continuation of the organization's project funding and operations. Sixty-five per cent of the funding that the PTRC receives from IS is used, alongside industry investments, to fund the Heavy Oil Research Network (HORNET) program, which selects and oversees much-needed research and development of heavy oil extraction technologies.

In addition to HORNET, the PTRC manages a research program focusing on studying the safe storage of underground carbon dioxide as a greenhouse gas reduction method (the Aquistore program), as well as a collection of applied research projects focused on carbon dioxide geological storage and enhanced oil recovery techniques (CO_2USER Program). Two of the five enhanced oil recovery (EOR) projects funded through IS's Saskatchewan Advantage Innovation Fund program and active in 2015-16 were managed by the PTRC.

More detailed information on the programming offered by the PTRC can be found in Appendix C.

Saskatchewan Advantage Innovation Fund (SAIF)

IS makes strategic innovation investments through the Saskatchewan Advantage Innovation Fund (SAIF). Projects funded through SAIF need to be aligned with provincial priorities and have the potential to create significant economic impact. The range of projects that have received funding through SAIF have varied from activities centred around applied research with a specific purpose, to development work very near to the commercialization stage. Common to all successful initiatives is significant investment involvement by industry partners and a clear path to implementation of the results of the funded project or program. More information on the process used to evaluate proposals can be found in Appendix A.

Carbon Capture, Utilization and Storage (CCUS)

IS chairs the Carbon Capture, Utilization and Storage Saskatchewan (CCUS-SK) Committee, which also includes representatives from SaskPower and the Ministry of the Economy. The CCUS-SK Committee is tasked with ensuring the alignment of provincial investments in CCUS research, with the provincial CCUS priority as articulated in the *Saskatchewan Plan for Growth*, which states: "Saskatchewan will remain an international leader in the development and demonstration of carbon capture and storage technology."

Technology Management Initiative

In 2014-15, SAIF funding was provided to the University of Regina for the Technology Management Initiative, a project done in collaboration with SaskPower. The funding created three jobs for highly qualified personnel to work on SaskPower sites to structure and organize technical information from CCUS initiatives to improve the technology and decrease knowledge gaps. The project was successfully completed in 2015-16. It delivered information that will inform future decisions regarding the use of CCUS technology to SaskPower.

Enhanced Oil Recovery (EOR)

Research into EOR and the development of EOR technologies enables continued oil production in Saskatchewan. Innovation is critical to the continued success of the province's oil and gas sector as 87 per cent of the Original Oil in Place (OOIP) cannot be recovered using only existing technologies, and 10.5 per cent of the recoverable 13 per cent has already been extracted, leaving only 2.5 per cent that can be recovered with known technologies.

IS provided funding in the 2013-14, 2014-15 and 2015-16 fiscal years for seven EOR projects, five of which either remained underway or were completed in the 2015-16 fiscal year:

- Mapping of In-Reservoir Oil Flow;
- Microbially Generated Biosurfactants for Heavy Oil;
- Oil Cut Meter Development;
- Understanding the Formation of Foamy Oil; and
- Tight Oil Research Consortium.

More detailed information on the EOR projects can be found in Appendix B.

Innovation Skills and Capacity Development Program (ISCDP)

The Innovation Skills and Capacity Development Program (ISCDP) was created to improve the ability of Saskatchewan entrepreneurs, companies and public employees to engage in behaviours that increase beneficial outcomes through innovation. The program primarily targets companies and

workers in Saskatchewan's core economic sectors and their supply chains, as well as public sector supporters. The objectives are to diversify the economy, support the *Saskatchewan Plan for Growth*, alleviate the skill shortage, and increase the profitability and performance of organizations.

In 2015-16, five information sessions were provided for industry partners and the public, as well as two workshops for registered participants. In addition, four diagnostic activities were performed with separate organizations. An online tool is being developed that will increase the accessibility and impact of the ISCDP.

In support of wider development of innovation skills throughout Saskatchewan, funding was provided to the following initiatives through the ISCDP:

- The Ernest C. Manning Innovation Awards;
- The Agricultural Bioscience International Conference;
- The Saskatchewan Chamber of Commerce ABEX Awards;
- The Raj Manek Foundation;
- The Saskatchewan Science Centre; and
- STEMfest - an international conference that attracted 7000 students to experience and learn about career opportunities in science, technology, engineering and math (STEM) areas.

International Engagement and Investment Attraction Program (IE&IAP)

In 2015-16, IS's International Engagement and Investment Attraction Program (IE&IAP) focused primarily on the following international initiatives:

- Israel: IS entered into Phase 2 of a joint funding agreement with the Canada-Israel Industrial Research and Development Foundation (CIIRDF). After completing the foundational work in May 2015, CIIRDF brought a delegation comprised of Israeli Agriculture Biotech experts to a research roundtable in Saskatoon. This event successfully connected Israeli and Saskatchewan researchers and companies that share common interests. These interactions led to a follow-up roundtable held in Israel in January 2016, where the groundwork was laid for the creation of a bilateral mechanism to co-fund joint research and technology commercialization projects. The first tranche of jointly funded projects is expected to commence in the fall of 2016.
- India: Recent engagement efforts have been centred on joint research and commercialization partnerships involving the post-harvest processing of pulses, joint technology development for smart grid applications, and the further development and deployment of CCS technologies at India's coal-fired power generating facilities.
- China: Work continued with VIDO-InterVac to facilitate vaccine development and commercialization in partnership with Chinese organizations. The opportunity is expected to result in technology licensing, small-scale manufacturing and Chinese investment in Saskatchewan.
- United Kingdom: The IE&IAP continues to work with Saskatchewan research entities looking to collaborate with a number of UK institutions in areas including plant root imaging, wheat research, and swine health, for the mutual benefit of expanding research programs in the UK and Saskatchewan.

Genome Prairie

Genome Prairie is a non-profit organization that supports stakeholders in Saskatchewan and Manitoba in capturing and maximizing the benefits of advanced research in genomics and related biosciences. IS funding was provided to Genome Prairie in 2015-16 to facilitate the launch of the Canadian Plant Genomics Platform, which will augment a number of plant-based technologies currently under development, including transformation, double haploid development and plant imaging technologies.

Genome Prairie has successfully attracted funds from Genome Canada and other partners, providing more than a three-to-one return on provincial investments.

Rare Earth Elements (REE)

In partnership with Avalon, an Ontario company, and the Saskatchewan Research Council (SRC), IS funded and facilitated a proof of concept project for a new separation process that would be used for separating rare earth elements (REE) from their ore. This process would reduce reagent use in processing by up to 30 per cent, which would provide significant economic and environmental benefits. Although the project is currently on hold due to market downturn, initial results are very encouraging. When completed, a REE processing facility established in Saskatchewan could employ up to 300 people, create opportunities for partner businesses such as a provincially based reagent manufacturer and encourage the exploitation of Saskatchewan REE deposits.

Board and Committee Representation

The priorities and best interests of the Government of Saskatchewan were represented by IS senior and executive staff on the following Boards of Directors:

- Agricultural Bioscience International Conference (www.ABIC.ca);
- Canadian Light Source (www.lightsource.ca);
- International Minerals Innovation Institute (www.imii.ca);
- Petroleum Technology Research Centre (www.ptrc.ca);
- Saskatchewan Health Research Foundation (www.shrf.ca);
- Sylvia Fedoruk Canadian Centre for Nuclear Innovation (www.fedorukcentre.ca); and
- Vaccine and Infectious Disease Organization-International Vaccine Centre (VIDO-InterVac) (www.vido.org).

Additionally, IS staff represented the Government of Saskatchewan on the following external committees:

- Canadian International Food Security Research Fund (Global Affairs Canada);
- International Minerals Innovation Institute (Education and Training Panel);
- International Minerals Innovation Institute (Research and Development Panel);
- Natural Sciences and Engineering Research Council of Canada (NSERC) (Prairies Advisory Committee);
- Pacific NorthWest Economic Region (PNWER); and
- Petroleum Technology Research Centre (Technical Advisory Group).

Innovation Success Stories

Through our funds and partnerships, Innovation Saskatchewan is contributing to ground-breaking research and development, and helping to advance Saskatchewan's innovation strategy. Learn more about our impact, through these success stories.

Helping Aboriginal Women

The Saskatchewan Health Research Foundation (SHRF), which receives funding from Innovation Saskatchewan, awarded over $80,000 for a two-pronged study on Aboriginal women athletes in 2015-2016:

- To explore their meanings and experiences of flourishing in sport; and
- To identify culturally relevant strategies to allow them to reach their potential and attain health outcomes.

This study will focus on the voices of a core group of Aboriginal women athletes and will help guide better policy development and sports programming. Since SHRF's creation in 2003, it has invested over $5 million to support First Nations and Métis health research.

Photo: Colette Bourgonje — Ten-time Paralympian, Coach & Mentor
Sport: Para-Nordic Ski; hometown: Porcupine Plain, Saskatchewan
Photo credit: Canadian Paralympic Committee

Cleaning Up Our Game

Shutout Solutions, a Saskatchewan company, used the Canadian Light Source synchrotron, which is partly funded by IS, to develop cleaning products for bacteria and odour control in athletic equipment. The company's natural, non-toxic products are now being used by professional and amateur athletes across Canada.

Safer Potash Mining

The International Minerals Innovation Institute, which IS funds, has signed research funding agreements with the Universities of Saskatchewan and Regina for the development of the Mining Materials Research Cluster in Saskatchewan. The $2.6 million research cluster will examine the corrosion of materials used in mineral processing and mining equipment and its supporting infrastructure, in Saskatchewan's potash industry. This research can improve safety and reduce environmental impacts.

Improving Cancer Treatments

Innovation Saskatchewan is a funding partner for the Sylvia Fedoruk Canadian Centre for Nuclear Innovation, which has invested $1.475 million towards the Fedoruk Chair in Nuclear Imaging Technologies and equipment at the University of Regina. This Chair, along with two others at the University of Saskatchewan and the Saskatchewan Centre for Cyclotron Sciences (also funded in part by IS), is building a capacity in nuclear imaging that will place Saskatchewan amongst global leaders in areas ranging from improved diagnostics and treatments for cancer to enhanced food security.

Improving Oil Recovery

IS and the Petroleum Technology Research Centre have funded a research collaboration between the University of Calgary and the Canadian Light Source in Saskatoon. This project will offer the first synchrotron images of a heavy oil production system in real time. This detailed visualization of a key mechanism in heavy oil recovery will be crucial for optimizing recovery rates in challenging reservoirs.

Canada-Wide Science Fair

The Canada-Wide Science Fair, funded in part by Innovation Saskatchewan, allows 500 of Canada's top young scientists to showcase their real world solutions to some of the globe's most important issues while competing for nearly $1 million dollars in awards, prizes and scholarships.

Improving Patient Treatment

Medical isotopes are used in about 5,500 medical scans daily in Canada. They help medical professionals to quickly and accurately diagnose and treat patients. Previously, these isotopes were produced using only a few nuclear facilities, which came with security and supply concerns. Canadian Isotope Innovations, a spin-off organization from the Innovation Saskatchewan-funded Canadian Light Source, offers a reactor-free solution to a worldwide shortage of medical isotopes that is clean, safe and reliable.

Making Math and Science More Fun

Innovation Saskatchewan is a proud sponsor of Sciematics, a provincial conference for the professional development of science and mathematics teachers from Kindergarten to Grade 12. This conference offers sessions, workshops and presentations that enable Saskatchewan teachers to learn new techniques, ideas and strategies that they can use with their students.

Growing Innovation in Saskatchewan

The Innovation Skills and Capacity Development Program (ISCDP), developed by Innovation Saskatchewan, is a value-added initiative to increase the innovation capacity of Saskatchewan businesses. The ISCDP aims to inspire businesses, strengthen Saskatchewan's business community, and grow a culture of innovation in Saskatchewan. In 2015, the ISCDP signed agreements with Strategian and the National Research Council – Industrial Research Assistance Program (NRC-IRAP) to expand program offerings, deliver one workshop and five information sessions, participate in nine innovation awareness events, and complete three organizational diagnostics. IS's commitment to innovation reflects its impact in a thriving economy and as a vital component to the development of a successful business community.

Investing in Natural Products

The Government of Canada has invested $14 million over five years in Natural Products Canada Inc. (NPC). NPC is set to establish Canada as a global leader in the development and commercialization of natural products. Ag-West Bio will represent Western Canada in this initiative. Natural products offer a wealth of applications in human and animal health as well as green alternatives to agricultural products and industrial chemicals. Innovation Saskatchewan is a contributing partner for this program and has committed its support.

Faster Treatments for Brain Injuries

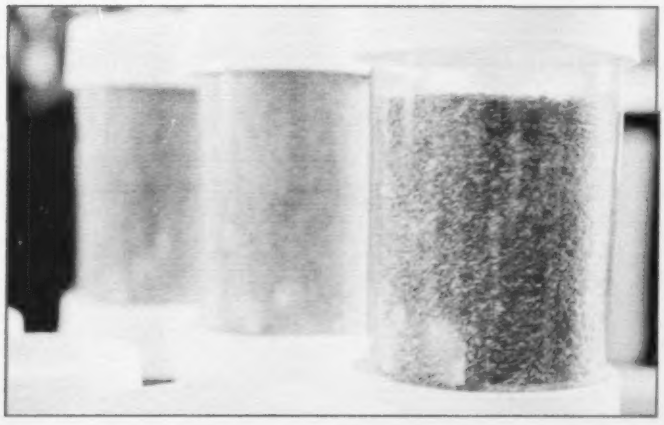
Testing of a protein biomarker that could contribute to a fast, effective and portable test for traumatic brain injuries or concussions is set to begin, thanks to funding from the Centre for Drug Research and Development (CDRD) Saskatchewan Innovation Fund, for which IS is a funding partner. An early diagnostic tool is urgently needed as patients can experience few symptoms initially but still be at risk for dangerous complications or death if left untreated. This tool could also help guide treatment strategies where current methods are insufficient.

Shining a Spotlight on Discovery

The Canadian Light Source, funded in part by Innovation Saskatchewan, celebrated 10 years of scientific discovery in 2015. To commemorate this landmark the facility was lit up with a stunning display every night of 2015. The synchrotron is the brightest light in Canada and has made some incredible scientific discoveries in fields such as HIV, cancer, multiple sclerosis, environment, agriculture, space-age materials, archeology, history, medical isotopes and nuclear science.

Spreading the Word

The Canadian Science Writers' Association (CSWA), which received funding from Innovation Saskatchewan, is committed to increasing public awareness of Canadian science and technology, especially among youth. The CSWA operates several national programmes including an annual conference, which offers public forums and educational workshops and highlights local developments in science and technology.

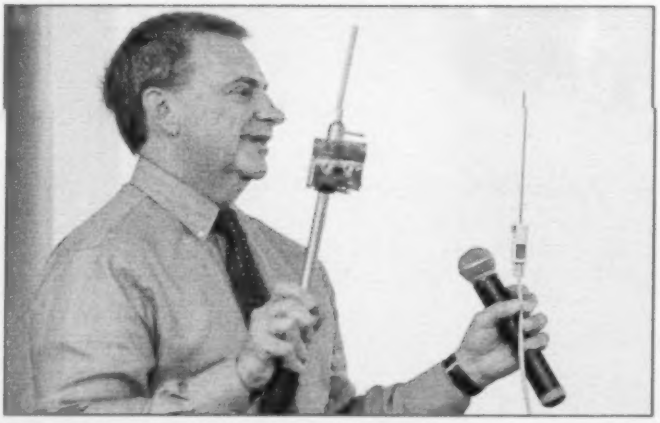


Partnering with Israel for Global Food Security

IS, the Canada-Israel Industrial Research and Development Foundation, and Israel's National Technological Innovation Authority have joined forces to advance the collaborative development of technologies to address global food security challenges. This culminated in a signed agreement, the first declaration of its kind, between the governments of Israel and Saskatchewan.

Protecting Against Farm Losses

Porcine epidemic diarrhea virus (PEDV) has killed over eight million pigs worldwide and represents an enormous threat to the Canadian swine industry. Saskatoon-based Vaccine and Infectious Disease Organisaton – International Vacine Centre (VIDO-InterVac), partly funded by Innovation Saskatchewan, is developing a vaccine for PEDV that has been successful in clinical trials. A large field trial is currently underway, with support from the Saskatchewan Pork Development Board (SaskPork) and the Government of Saskatchewan Agriculture Development Fund. If successful, this vaccine could save millions of pigs globally.



Treating Inoperable Brain Cancer

The NeuroBlate System helps surgeons to successfully treat patients with brain tumors and other lesions that were previously considered inoperable. The system uses a laser-probe to heat and kill tumour cells in the brain. This minimally invasive procedure offers surgeons increased precision in treating cancer and avoids damage to surrounding healthy brain tissue. This innovation received the 2015 Ernest C. Manning Principal Award of $100,000 in Saskatoon at the annual awards celebration, sponsored in part by IS. Mark Torchia and Richard Tyc of NeuroBlate have since been named among the first winners of the Governor General's Innovation Awards.

Photo credit: ©Josh Schaefer/GetMyPhoto.ca

2015-16 Financial Overview

Innovation Saskatchewan

Report of Management

For the Twelve Month Period Ended March 31, 2016

The accompanying financial statements are the responsibility of the management of Innovation Saskatchewan. They have been prepared in accordance with generally accepted accounting principles for the public sector, using management's best estimates and judgments, where appropriate. Management is responsible for the reliability and integrity of the financial statements, the notes to the financial statements and other financial information contained in this report. Management is also responsible for maintaining a system of internal controls, policies and procedures designed to provide reasonable assurance that assets are safeguarded and that accounting systems provide timely, accurate and reliable financial information.

The Innovation Saskatchewan Board of Directors is responsible for ensuring that management fulfills its responsibilities for financial reporting and internal control. The Office of the Provincial Auditor has audited the agency's financial statements in accordance with generally accepted auditing standards, and their report follows.

Wes Jickling
Chief Executive Officer
Innovation Saskatchewan

July 21, 2016

Innovation Saskatchewan
Financial Statements
For the Year Ended March 31, 2016

PROVINCIAL AUDITOR
of Saskatchewan

INDEPENDENT AUDITOR'S REPORT

To: The Members of the Legislative Assembly of Saskatchewan

I have audited the accompanying financial statements of Innovation Saskatchewan, which comprise the statement of financial position as at March 31, 2016, and the statements of operations and accumulated surplus, change in net financial assets, and cash flows for the year then ended, and a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian public sector accounting standards for Treasury Board's approval, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

My responsibility is to express an opinion on these financial statements based on my audit. I conducted my audit in accordance with Canadian generally accepted auditing standards. Those standards require that I comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

Opinion

In my opinion, the financial statements present fairly, in all material respects, the financial position of Innovation Saskatchewan as at March 31, 2016, and the results of its operations, changes in its net financial assets, and its cash flows for the year then ended in accordance with Canadian public sector accounting standards.

Judy Ferguson

Regina, Saskatchewan
July 8, 2016

Judy Ferguson, FCPA, FCA
Provincial Auditor

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Statement 1

Innovation Saskatchewan
Statement of Financial Position
As at March 31

	(thousands of dollars)	
Financial Assets	**2016**	**2015**
Due from General Revenue Fund (Note 3)	$ 7,830	$ 5,129
Accounts Receivable	25	12
	7,855	5,141
Liabilities		
Accounts Payable and Accrued Liabilities	987	344
Net Financial Assets (Statement 3)	6,868	4,797
Non-financial Assets		
Prepaid Expenses	4	8
Accumulated Surplus (Statement 2)	$ 6,872	$ 4,805

Contractual Obligations (Note 5 and 8)
Designated Assets (Note 9)
(See accompanying notes to financial statements)

Statement 2

Innovation Saskatchewan
Statement of Operations and Accumulated Surplus
for the Year Ended March 31

		(thousands of dollars)	
		2016	*2015*
	Budget (Note 4)	**Actual**	**Actual**
Revenue			
Transfer from the General Revenue Fund	$ 30,510	$ 30,510	$ 11,590
Interest Earned from the General Revenue Fund		106	96
Other		89	239
	30,510	30,705	11,925
Expenses (Note 7)			
Administration	2,353	1,935	1,938
Program Grants			
Saskatchewan Advantage Innovation Fund (Note 9)	996	1,318	2,206
Petroleum Technology Research Centre	2,000	2,000	2,000
Innovation and Science Fund	4,000	1,599	-
International Minerals and Innovation Institute	1,000	1,000	-
Sylvia Fedoruk Centre	4,800	5,425	10,218
Canadian Light Source	4,100	4,100	-
InterVac	2,131	2,131	-
Vaccine and Infectious Disease Organization	3,500	3,500	-
Saskatchewan Health Research Foundation	5,630	5,630	-
Other	-	-	68
	30,510	28,638	16,430
Annual Surplus/(Deficit)	$ -	2,067	(4,505)
Accumulated Surplus, Beginning of Year		4,805	9,310
Accumulated Surplus, End of Year (Statement 1)		$ 6,872	$ 4,805

(See accompanying notes to financial statements)

Statement 3

Innovation Saskatchewan
Statement of Change in Net Financial Assets
for the Year Ended March 31

	(thousands of dollars) 2016	2015
Annual Surplus/(Deficit)	$ 2,067	$ (4,505)
Decrease in Prepaid Expenses	4	8
Increase/(Decrease) in Net Financial Assets	2,071	(4,497)
Net Financial Assets, Beginning of Year	4,797	9,294
Net Financial Assets, End of Year (Statement 1)	$ 6,868	$ 4,797

(See accompanying notes to financial statements)

Statement 4

Innovation Saskatchewan
Statement of Cash Flows
for the Year Ended March 31

	(thousands of dollars) 2016	2015
Operating Activities		
Cash Receipts from General Revenue Fund	$ 30,510	$ 11,590
Cash Receipts from Other Operating Activity	89	244
Cash Paid to Suppliers and Employees	(27,992)	(16,631)
Cash Provided by (Used in) Operating Activities	2,607	(4,797)
Investing Activities		
Cash Receipts from Interest	94	132
Cash Provided by Investing Activities	94	132
Increase/(Decrease) in Due From General Revenue Fund	2,701	(4,665)
Due from General Revenue Fund, Beginning of Year	5,129	9,794
Due from General Revenue Fund, End of Year	$ 7,830	$ 5,129

(See accompanying notes to financial statements)

Innovation Saskatchewan
Notes to the Financial Statements
for the Year ended March 31, 2016

1. Status of Innovation Saskatchewan

Innovation Saskatchewan was established under the provisions of *The Innovation Saskatchewan Act* on November 2, 2009.

Innovation Saskatchewan is the central agency of the Government of Saskatchewan with responsibility for implementing Saskatchewan's innovation priorities. Innovation Saskatchewan coordinates the strategic direction of the government's research and development and science and technology expenditures; provides advice on science and technology policy; coordinates the establishment and maintenance of science, research and development infrastructure; and provides advice and recommendations on research, development, demonstration, and the commercialization of new technologies and innovative processes in Saskatchewan. Innovation Saskatchewan is a corporate body eligible to receive monies primarily appropriated by the legislature for these purposes.

2. Significant Accounting Policies

These financial statements are prepared using Canadian Public Sector Accounting Standards published by CPA Canada and reflect the following significant accounting principles. Innovation Saskatchewan did not have any re-measurement gains and losses, therefore a statement of re-measurement gains and losses is not provided.

a) Revenue

Revenue is recognized in the period in which the transactions or events occurred that give rise to the revenue. Transfers from the General Revenue Fund are unrestricted in nature and are recognized when authorized and any eligibility criteria are met.

b) Expenses

Expenses represent the cost of resources consumed during the year for operations and grants made to third-party organizations. Grants are recognized as expenses in the period during which the transfer is authorized and eligibility criteria are met.

c) Non-financial Assets

Prepaid expenses are non-financial assets that are accounted for as assets because they can be used to provide services in future periods. These assets do not normally provide resources to discharge existing liabilities unless they are sold.

d) Measurement Uncertainty

The preparation of financial statements in accordance with Canadian Public Sector Accounting

Standards requires management to make estimates and assumptions that affect the reported amount of financial assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amount of revenues and expenses during the reporting period. These estimates are reviewed periodically, and, as adjustments become necessary, they are reported in the Statement of Operations and Accumulated Surplus in the period in which they become known.

3. Due from the General Revenue Fund

Innovation Saskatchewan's bank account is included in the Consolidated Offset Bank Concentration arrangement for the Government of Saskatchewan. Interest is paid on a quarterly basis at the government's 30-day average interest rate. The average rate for 2015-16 was 0.60% (2014-15 was 0.92%). Interest earned during the year was $106,396 (2014-15 – $95,551).

4. Budget Approval

The 2015-16 budget submission to Saskatchewan Finance for 2015-16 was approved by the Innovation Saskatchewan Board on September 29, 2014.

5. Related Parties

These financial statements include routine transactions with related parties. Innovation Saskatchewan is related to all Saskatchewan Crown agencies such as ministries, corporations, boards and commissions under the common control of the Government of Saskatchewan. Also, Innovation Saskatchewan is related to non-Crown Corporations and enterprises that the government jointly controls or significantly influences.

Related party transactions to March 31, 2016 include the following:

	(thousands of dollars)	
Expense	2015-16	2014-15
Board of Education of the Saskatoon School Division No. 13 of Saskatchewan	$ -	$ 7
Ministry of Central Services	-	18
University of Saskatchewan	7,693	6,221
SaskTel	17	18
Sylvia Fedoruk Canadian Centre for Nuclear Innovation - Grant	5,000	4,000
Saskatchewan Health Research Foundation	5,630	-
Saskatchewan Research Council	50	-
University of Regina	100	400
Innovation Place	145	148
Ministry of the Economy	156	203
The Canadian Light Source	4,100	-
Accounts Receivable	$ 25	$ 12
Accounts Payable	$ 723	$ 194
Other Revenue	$ 15	$ -

	(thousands of dollars)	
Contractual Obligations	Leases	Programming
2016-17	$ 148	$ 4,222
2017-18	-	3,700
2018-19	-	-
2019-20	-	-
2020-21	-	-
2021-22	-	-
Total	$ 148	$ 7,922

Other transactions with related parties and amounts due to/from them are described separately in the financial statements and the notes thereto.

Routine operating transactions with related parties are recorded at the rates charged by those

organizations and are settled on normal trade terms. In addition, Innovation Saskatchewan pays Provincial Sales Tax to the Saskatchewan Ministry of Finance on all its taxable purchases.

6. Financial Instruments

Innovation Saskatchewan's financial instruments include: Due from the General Revenue Fund, Accounts Receivable, Accounts Payable and Accrued Liabilities. The carrying amount of these instruments approximates fair value due to their short-term nature. These instruments have no material interest, credit, liquidity, or market risks.

7. Expense by Object

(thousands of dollars)

Expenses	March 31, 2016	March 31, 2015
Goods and Services	$ 618	$ 660
Grants and Transfers	26,752	14,243
Pension and Benefits	135	203
Salaries	1,092	1,241
Travel	41	83
	$ 28,638	$ 16,430

8. Contractual Obligations

Innovation Saskatchewan has non-related party programming and operational obligations in future years.

(thousands of dollars)

	Programming	Operational
2016-17	$ 1,238	$ -
2017-18	36	-
2018-19	36	-
	$ 1,310	$ -

9. Designated Assets

Innovation Saskatchewan is holding $5.482M as designated assets to be spent as follows:

	(thousands of dollars)	
Designated Assets	**March 31, 2016**	**March 31, 2015**
Nuclear Strategy Program	$ 719	$1,344
ISF	2,401	-
SAIF	2,362	2,684
	$ 5,482	$4,028

Innovation Saskatchewan maintains two internal funds called the Saskatchewan Advantage Innovation Fund (SAIF) and the Innovation and Science Fund (ISF). SAIF provides support for innovation activities in areas such as research and development, demonstration, commercialization and education consistent with the Innovation Saskatchewan mandate while ISF provides support for similar activities in science. Decisions on projects funded by SAIF and ISF are based on a rigorous project evaluation criteria used to vet all projects and are recommended to the Innovation Saskatchewan Board of Directors for approval.

Due to delays in planning and negotiations, Innovation Saskatchewan has retained funds for its Nuclear Strategy Program for purposes of supporting the construction of the Saskatchewan Centre for Innovation in Cyclotron Science (SCI-CS) cyclotron facility and associated nuclear substances laboratory, part of the Sylvia Fedoruk Canadian Centre for Nuclear Innovation and for joint research projects undertaken under the auspices of the Memorandums of Understanding with Hitachi, Ltd. These designated assets are included in the Due from General Revenue Fund on the Statement of Financial Position.

10. Pension Costs

The employees of Innovation Saskatchewan participate in the Public Employees' Pension Plan defined contribution plan. Pension costs of $78,354 (2014-15 - $95,306) are included in pension and benefits expense and comprise the cost of employer contributions for current service of employees during the year. Employer contribution levels are applied at 7.25% of salary. Innovation Saskatchewan's liability is limited to the required contributions.

11. Comparative Figures

Certain prior year balances have been reclassified to conform to the current year's financial statement presentation.

For More Information

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Appendices

Appendix A

Project Management Roadmap

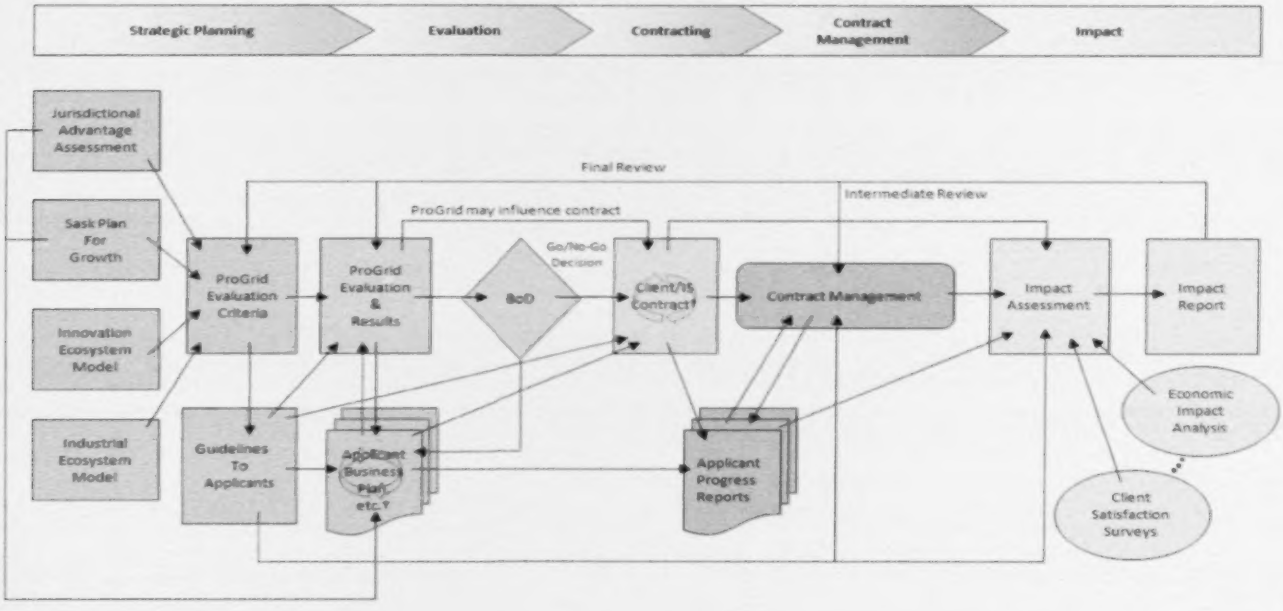
Innovation Saskatchewan (IS) has developed a Body of Practice, described in its Project Management Roadmap, which improves IS's evaluation of opportunities, management of contracts and impact measurements. It enables IS to be accountable for its investments, while creating an opportunity for continuous improvement by learning from previous experiences. In this way, IS will become more efficient. An overview of the process is shown through the diagram below.

First, IS identifies strategic objectives to be achieved through its investments. These are described in the Jurisdictional Advantage Assessment, the *Saskatchewan Plan for Growth*, and IS's evaluation of the environment required to support innovation in the province. These assessment tools guide the criteria to be used in evaluating project proposals.

IS uses ProGrid to evaluate projects and programs for investment opportunities. ProGrid is a computational system that assesses tangible and intangible factors that are important to a funding agency. This system evaluates all projects and programs by their alignment with provincial priorities, the strength of their design, their plans to implement findings to benefit the province and the impact those benefits would have on the province. Investment applicants are informed of the criteria, and a lead person within IS oversees a submission from the applicant that details the proposed project or program's alignment with these criteria.

Once a project is approved internally, it is recommended to the IS Board of Directors. Assuming Board approval, the IS lead begins a dialogue with the applicant regarding contract details based on an established contract template. The contract will reflect the timelines, deliverables, milestones, reporting, payment schedules and other details agreed to by the applicant. IS will then manage the project through to its completion according to this contract.

When a contract is fulfilled, an analysis is carried out to establish whether IS achieved the intended objectives and realized the desired outcomes from its investment. IS will evaluate the outcomes and impacts that result from a project or program. Impact analyses and reports conducted by IS provide a cycle of continuous improvement feedback. IS uses this feedback to better improve ongoing client relations, contract management and project evaluation methods for future investments. It may also provide insight into the design of the underlying strategic plan.



Appendix B

Enhanced Oil Recovery Project Information

Enhanced Oil Recovery (EOR) Research and Development is an initiative put forward to encourage research into new ways of increasing oil production, prompted by the fact that of Saskatchewan's estimated 48.3 billion barrels of Original Oil in Place (OOIP), 87 per cent cannot be recovered with known technologies. Of the 13 per cent OOIP considered recoverable, 10.5 per cent has been extracted, leaving only 2.5 per cent that can be recovered with existing technologies. SAIF has been allocated $2.5 million ($1.0 million in each of the 2013-14 and 2014-15 fiscal years and $500K in 2015-16), from which seven EOR projects costing a total $10,685,000 (of this amount, $2,303,000 was from SAIF) have been approved and are in various states of progression.

A brief summary of the EOR projects completed and underway follows:

Mapping of In-Reservoir Oil Flow: The second phase of a multi-phase project continued in 2015-16. The project is designed to develop the technology needed to map the flow of oil in reservoirs, particularly those that have been subjected to the extraction process known as Cold Heavy Oil Production with Sand (CHOPS) that has been widely used in Saskatchewan's heavy oil fields. CHOPS involves the deliberate production of sand along with the oil it contains. Since after seven or eight years of production, wells produce mainly water rather than oil, it is theorized that channels (wormholes) have been created that become a preferential path for the injected recovery fluids (water), resulting in the recovery fluids no longer coming into contact with the oil that remains in the formation. Being able to map wormholes will allow:

- Placement of new in-fill wells that avoid intersecting wormholes to access oil that is not on the wormhole path; and
- Improved design of new enhanced oil recovery technologies.

Work completed in 2015-16 demonstrated that the planned use of instrumented motes for mapping the flow of oil to the producer well was not going to be achieved in an economically affordable manner. Initial field testing had shown that some of the 3/8" diameter motes injected into the oil field via an injector well would be produced along with oil at the producer well. However, the necessary electronics could not fit in that size of mote. Larger diameter motes were assembled, instrumented and tested in Saskatchewan Research Council's Pipe Test Centre. The location and orientation of the mote could be tracked in the pipe but the data showed that it was unlikely that the motion of mote moving underground could be tracked. This finding, coupled with the realization of the cost of miniaturization of the electronics to enable them to fit in the size of mote required for injection, caused the PTRC's Technical Advisory Group (TAG), which oversees the project, to change the direction of the project. A medical camera was inserted in the well bore to see if what was going on underground could be seen. The camera test failed because it was not robust enough for the downhole environment. The TAG directed that the project manager conduct another search for applicable technology. This search identified a more robust camera that will be tested in 2016-17.

Microbially Generated Biosurfactants for Heavy Oil EOR: This project intended to focus on the stimulation of naturally occurring biosurfactant-producing microbes and testing of those biosurfactants in heavy oil reservoirs, to enhance oil recovery. The project team included a technology provider, an oil company, Saskatchewan Research Council (SRC), the University of Saskatchewan and the National Research Council (NRC).

The lab work on this project conducted by the technology company and the NRC proceeded as planned. Four microbial-based and one plant-based surfactants were provided to SRC for simulated field testing. The plant-based biosurfactant proved to have the greatest potential for successful field testing. Unfortunately, at this stage, the oil company partner had to withdraw from the project due to the downturn in oil prices.

The technology company identified new industrial partners interested in the potential that the agricultural-based product was shown to have in a bio-remediation application. The IS board approved a reorientation of the project to the evaluation of the potential for the plant-based product to be a bio-remediation agent used to clean up oil contaminated sites. Initial lab work has been very promising and additional lab and field work is planned for 2016-17.

Oil Cut Meter Development: This project, led by an instrument manufacturer with support from its distributor, SRC and an oil company, will address a challenge faced by most producers of conventional oil – the ability to cost-effectively measure the amount of oil produced at the well head. As wells mature they produce less oil and more water. The majority of conventional wells produce fluids that contain less than five per cent oil. To address the inability to measure oil production of individual wells, companies pool the fluid from a number of wells – some of which produce 100 per cent water and no oil. Removing the "water producers" saves the production and water handling costs associated with those wells and frees battery capacity to take on suspended wells that were previously taken offline.

The project will develop and test an affordable meter that will address the wide variety of conditions that it will encounter in the field. The sub-system prototypes and the assembled product will be tested during the development process with actual oil and water mixtures of varied gravity, density, temperature, chemical composition and presence of sand or entrained air. The project will deliver an instrument capable of measuring the amount of oil in the fluid produced at each well at an affordable price point. Project commencement has been delayed due to financial issues on the industry side caused by oil industry downturn and other factors. The distributor consulted its investor network and believes it has found a solution that can be implemented in 2016-17.

Understanding the Formation of Foamy Oil: This project, which started 2015-16 and will be completed in 2016-17, will take advantage of the capabilities of the Canadian Light Source at the University of Saskatchewan to visually observe and better understand the formation of foamy oil that is known to play an important role in the heavy oil recovery process. The knowledge gained will be used by University of Calgary researchers and the PTRC's consortium of heavy oil producers to improve their process modeling to more accurately represent the physical phenomenon. This will lead to better control of the process parameters delivering improved recovery without investment in new capital equipment, an ideal project for times of lower prices.

Tight Oil and Shale Gas Innovation Network (TOGIN): SAIF partnered with the Saskatchewan Research Council (SRC) to enable SRC's participation in an Alberta-based research network headed by the Petroleum Technology Alliance of Canada (PTAC). This participation expanded the scope of TOGIN's work to include Saskatchewan's Bakken reservoir in a study to advance the understanding required to improve production, reduce costs and minimize environmental impacts associated with oil and gas recovery from Canada's tight reservoirs. TOGIN is funded by SAIF, SRC, industry, the Government of Alberta and Natural Resources Canada.

Appendix C

Petroleum Technology Research Centre Program Information

The 2015-16 fiscal marked the second year since the Government of Saskatchewan transferred the responsibility for provincial funding of the Petroleum Technology Research Centre (PTRC) to Innovation Saskatchewan (IS). This transfer promoted synergies between this petroleum-focused innovation intermediary and IS's goal to encourage innovation through the Enhanced Oil Recovery (EOR) element of its Saskatchewan Advantage Innovation Fund (SAIF).

IS entered into and managed a contract for $2.0 million with the PTRC. IS's Chief Strategist assumed a position on the PTRC's Board of Directors and on its Technical Advisory Group (TAG), along with industrial members, to provide oversight on how this provincial funding would be used to benefit the province's oil and gas sector. $1.3 million of the IS funding, supplemented with $0.5 million from industry memberships, was invested in TAG-directed research that investigates the behaviour of heavy oil in reservoirs. $0.7 million was used to support the overall operations of the PTRC.

The following table outlines details on the projects funded:

Project Title	Research Organization	Financial Commitment	Project Duration
Investigation of VVRR Waterflood Processes with Polymers in Large Core Displacement System	Saskatchewan Research Council	$153,200.00	One Year
Foamy Oil Generation and Stability During a Cyclic Solvent Injection Process	Saskatchewan Research Council	$160,000.00	One Year
Solvent-Heavy Oil Database and PVT/Viscosity Models	University of Calgary	$100,000.00	Two Years
Measurement of Foamy Oil Viscosity in Solvent Heavy Oil Systems	University of Calgary	$130,500.00	Two Years
CO_2-CSI and CGI for Post-CHOPS Reservoirs by Recycling CO_2 in a Two-Well Configuration	University of Regina	$40,000.00	One Year
Non-Equilibrium Characterization of CO2-Heavy Oil Systems Under Different Viscosities and Temperatures	University of Regina	$150,000.00	Two Years
Real Time Phase Behaviour and Micro-Model Analysis of Foamy Oil Production During Cyclic Solvent Injection for Heavy Oil Recovery: From Transient to Equilibrium Conditions	University of Regina	$150,000.00	Two Years
Total		**$883,700.00**	